

INFLUENCES CAUSING VARIATION IN BUTTER-FAT PRODUCTION.

by

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It is a well known fact that changes in the weather, feed, care and treatment of the cow affects the production of butter-fat; also, that the test and the amount of milk varies greatly from milking to milking with a single cow, while the average test from a herd varies but little. Where a great deal of milk is produced by a cow the test is apt to be low, and where there is little milk produced the test is usually high.

The question of conditions which affect the production of butter-fat is a complicated one in as much as one condition may counteract the effect of another--for instance, good shelter and a little extra care will counteract the effect of severe weather, while rough handling will reduce the advantages obtained by good feeding.

The reason for making this experiment was that no experiment of the kind which covers a long period is on record. Twelve cows were selected from the College dairy herd--six of them thorough-breds, Jerseys, Holsteins and Ayrshires, and six of them grades and scrubs. The milk was carefully weighed after each milking and samples taken and tested. The time covered was one hundred thirty-seven days beginning with the 11th of December and ending the 25th of April. Five of the scrub cows were dropped during February and March and were replaced by four others, but the thorough-breds and one scrub were tested the whole time.

The cows were well cared for, stabled at night and turned in the lot day-times, excepting in bad weather when they were kept in the barn all day. Owing to the mildness of the winter and the careful handling of the cows we failed to obtain any startling results.

A short table from the record of cow No. 1 will show the variation of the test of a single cow from milking to milking.

April	19th	20th	21st	22nd	23rd
	5.0	3.0	2.5	4.2	4.5
	5.3	9.0	6.7	5.4	5.4

This variation is graphically illustrated by the curve on co-ordinate sheet No. I. This curve covers the period from April 14th to 23rd inclusive.

The following table contains the average weekly test of three cows for the whole period:

	Cow No. 201	No. 202	No. 1
Dec. 21	4.44	4.42	5.57
" 28	4.06	4.33	5.23
Jan. 4	4.08	3.99	5.08
" 11	4.42	4.10	5.27
" 18	4.32	4.44	5.26
" 25	3.93	4.08	5.11
Feb. 1	4.14	3.98	4.81
" 8	4.06	3.99	4.87
" 15	3.93	3.97	4.77
" 22	4.13	4.13	4.61
" 29	3.98	3.89	4.64
Mar. 7	3.97	3.60	4.46
" 14	4.08	3.81	4.76

Mar. 21	4.21	3.91	4.92
" 28	4.06	3.73	5.09
Apr. 4	4.79	4.27	5.44
" 11	4.76	4.36	5.11
" 18	4.84	4.00	5.12
" 23	4.47	4.12	5.36

This table is illustrated by a curve for each cow on co-ordinate sheet No. II. The curves have a tendency to take the same general direction. From December 21st to January 4th there was a drop for all three cows. From January 4th to the 11th there was a general raise in the test. From January 18th to February 1st there was a general drop again etc. This shows that the conditions which affect the test of one cow's milk affect another's in the same way.

On co-ordinate sheet No. III is a curve representing the weekly average test of the milk of No. 202 compared with a curve representing the weekly amounts of milk. These curves show that when the test is high the amount of milk is usually low and vice versa. From February 15th to February 22nd the rise in the test was accompanied by a lowering in the amount of milk, and likewise, the lowering of the test from February 29th to March 14th was accompanied by a slight increase in the production of milk.

In the following tables the effect of high, low and medium barometer, clear weather vs. cloudy weather, and warm weather vs. cold weather are noted. The average milk per head, the average test and the average butter-fat per head were taken. The first table takes in the days February 5th, 6th and 13th, during which time there was a low barometer, and February 8th, 9th and 10th, during which time there was a high barometer. There was more butter-fat produced during the

low barometer period than during the high, but the test was lower. The second table covering the period from March 29th to April 4th shows a like result. The third table for medium and high barometer shows a result in favor of the medium barometer.

Table I.

Comparative Production During High and Low Barometer Periods.

	Avg. Milk per head	Avg. Test	Avg. Butter-fat
Feb. 5, 6, & 13 Low Bar.	21.18	3.93	.8034
" 8, 9, & 10 High "	19.52	4.051	.7915
Dif. in favor of Low Bar.	01.66	0.121	.0119

Table II.

Comparative Production During High and Low Barometer Periods.

	Avg. Milk per head	Avg. Test	Avg. Butter-fat
Mar. 29, 30, 31 & Apr. 1, Low Barometer.	18.17	4.71	.8363
Apr. 2, 3 & 4, High Bar.	17.00	4.918	.8233
Dif. in favor of Low Bar.	1.17	.208	.0130

Table III.

Comparative Production During Medium and High Barometer Periods.

	Avg. Milk per head	Avg. Test	Avg. Butter-fat
Mar. 15 & 18, Med. Bar.		4.271	.9086
" 19 & 22, Low "		4.232	.8810
Dif. in favor of Med. Bar.		.039	.0276

Table IV. in which clear weather is compared with cloudy weather, covers a period from January 5th to January 12th. There was more butter-fat produced and a higher test on the clear days than on the cloudy days.

No. IV

Apr. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

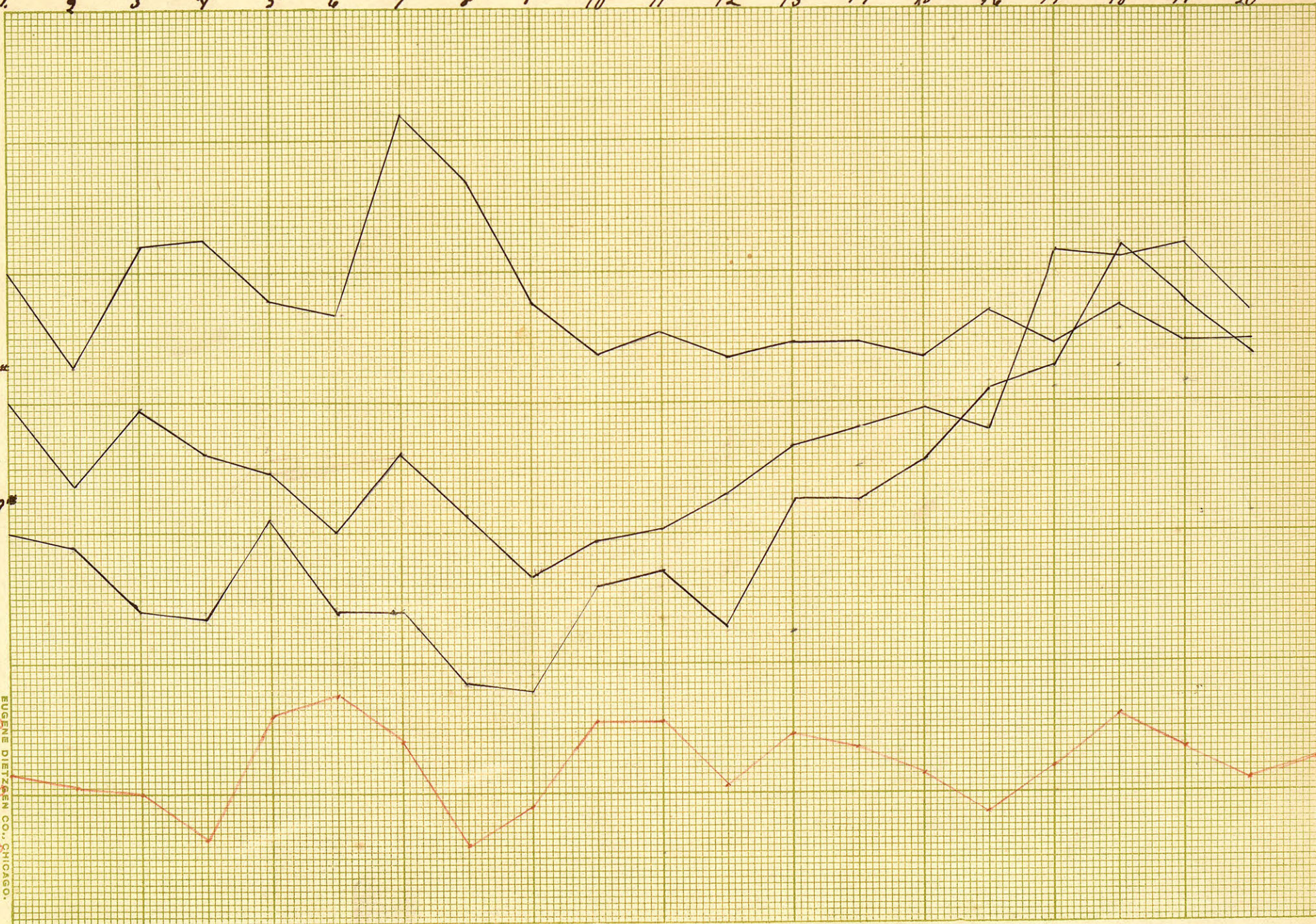
Test
12 face to 03
494

Butter Fat
12 face to 005"
.8660

Lbs. Milk
12 face to 009"
17.80

EUGENE DIETZEN CO., CHICAGO.

500
400
300



Pro. III

Dec 1 28 Jan 4 11 18 25 Feb 1 8 15 22 29 Mar 7 14 21 28 Apr 4 11 18 23

5.02

Test.
No 2.02

4.42

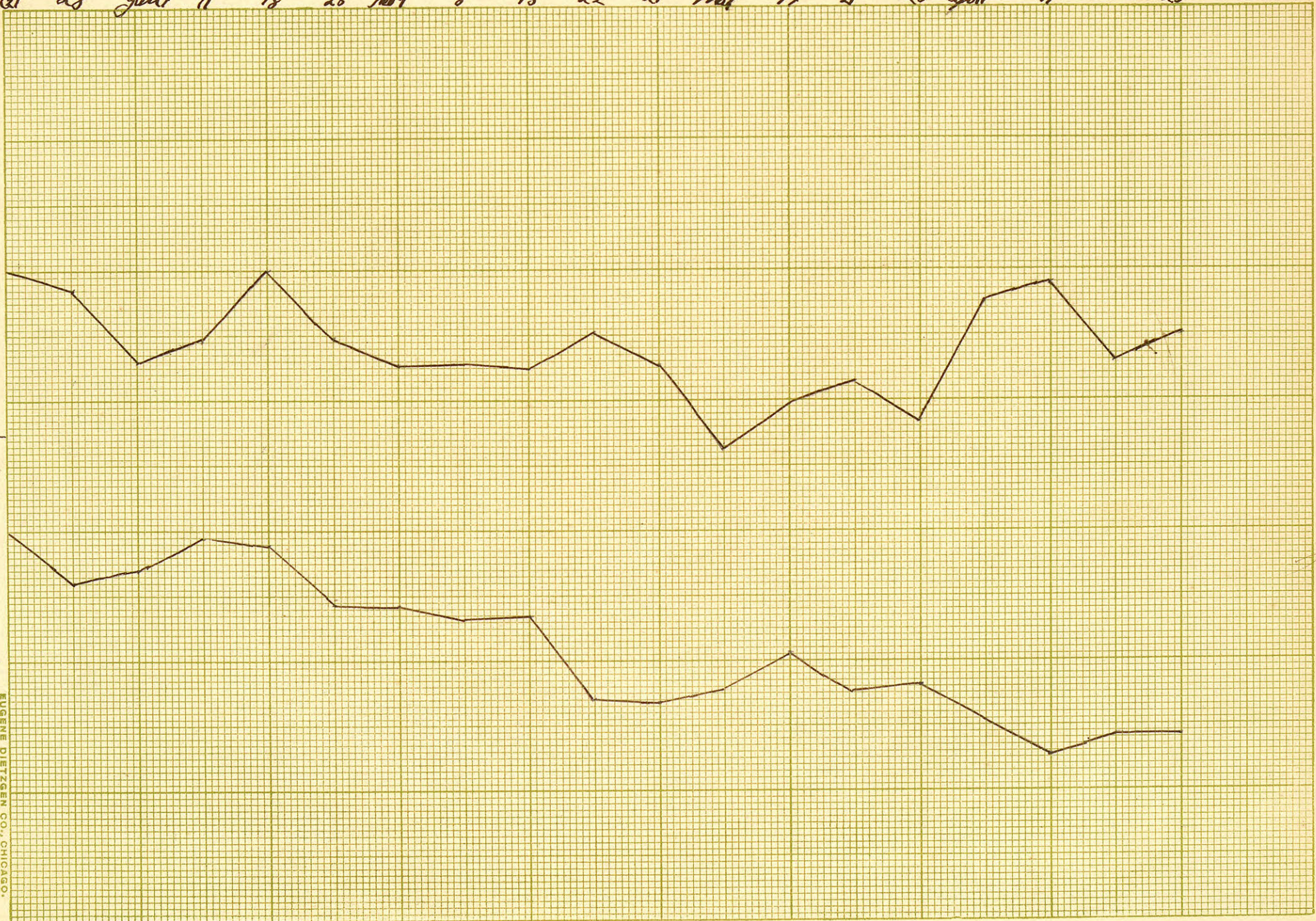
3.82

Lbs. Milk.

21.58

155.8

EUGENE DIETZEN CO., CHICAGO.



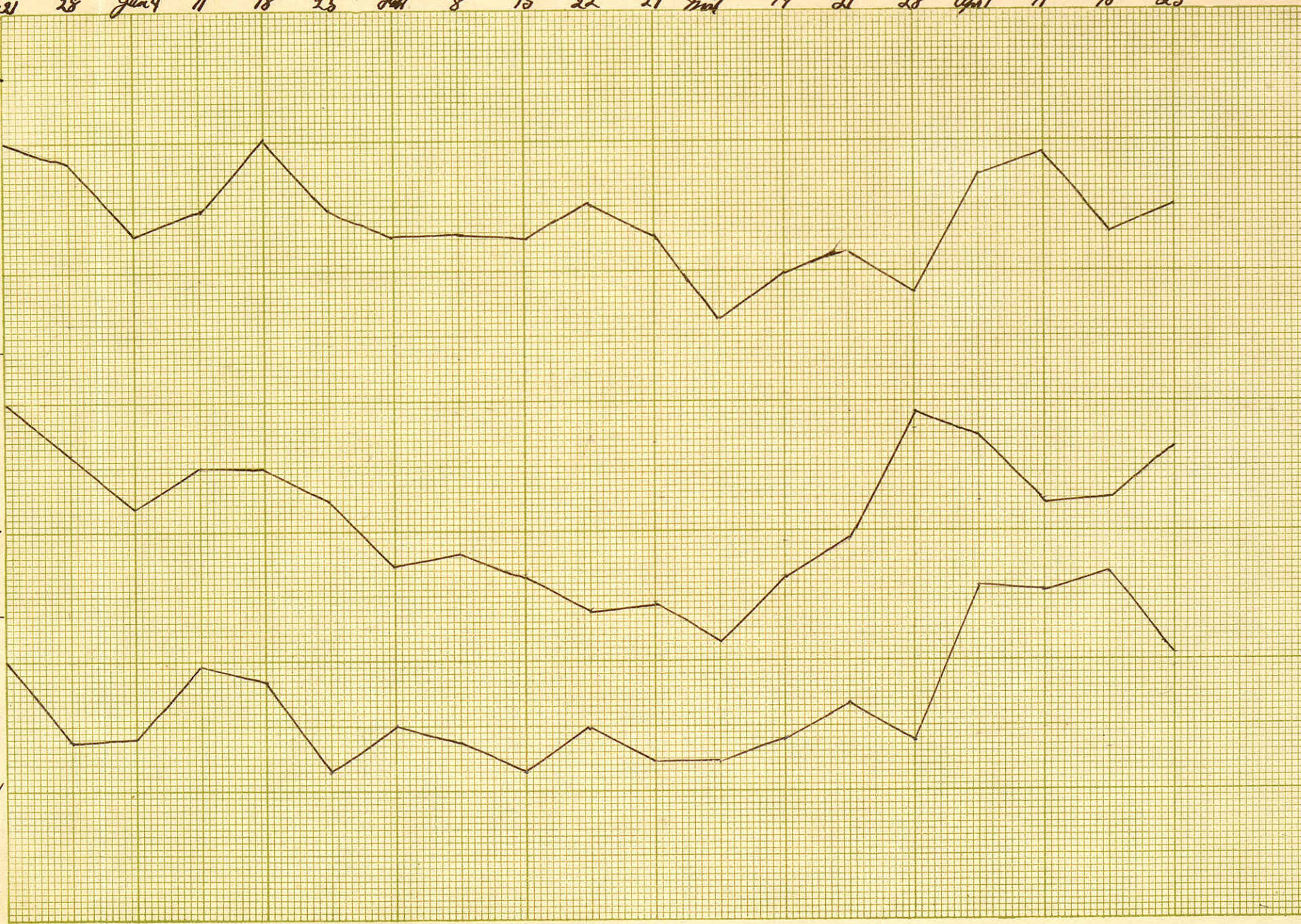
Plot II

Dec 21 28 Jan 4 11 18 25 Feb 8 15 22 29 Mar 7 14 21 28 Apr 4 11 18 28

4.72
No 202
4.42
4.12
3.82

No 1
3.57
3.27
2.97

No 201
4.44
4.14
3.84



No. I.

6/14 AM PM 15 AM PM 16 AM PM 17 AM PM 18 PM PM 19 PM PM 20 PM PM 21 AM PM 22 AM PM 23 PM PM

5.8
5.5
No. 1.
5.2
4.9
4.6

EUGENE DIETZGEN CO., CHICAGO.

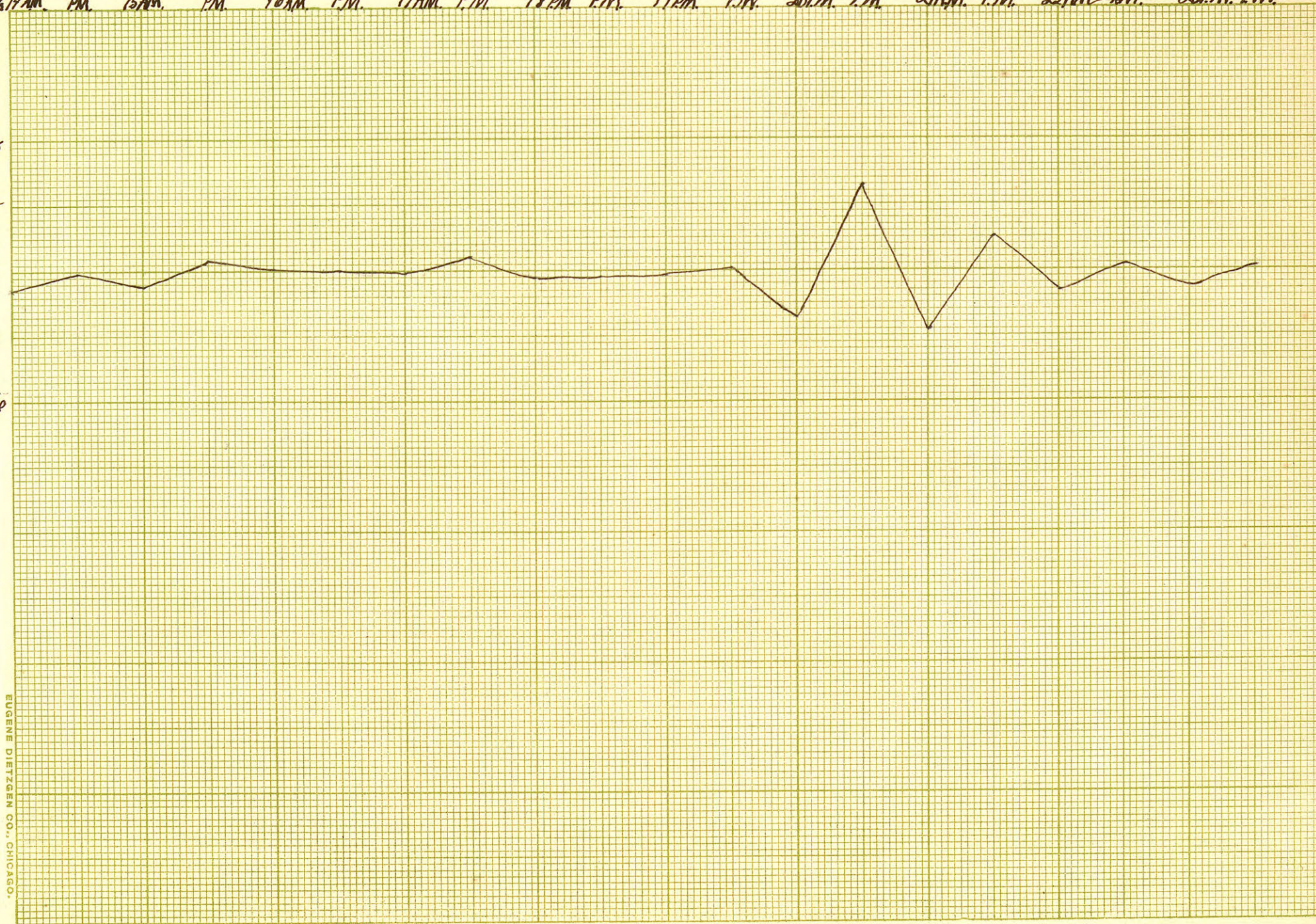


Table IV.
Comparative Production During Clear and Cloudy Weather.

	Avg. Test per day	Avg. lbs. of B. F. for 12 cows.
Jan. 5-8 Clear	4.315	10.4666
" 9-12 Cloudy	4.190	10.3329
Dif. in favor of Clear Weather.	.125	.1337

In Table V. in which cold weather is compared with warm weather the difference is in favor of the warm weather in both the test and the amount of milk.

Table V.
Comparative Production During Cold and Warm Weather.

	Avg. lbs. Milk per cow per day	Avg. Test per day	Avg. lbs. Butter-fat per day
Jan. 13-19 inclusive, Warm	20.69	4.183	.8723
" 20-27 " Cold	20.13	4.173	.8353
Dif. in favor of Warm Weather.	.56	.01	.0370

On April 7th just before milking time four of the scrub cows were taken out in the pasture and chased around until they were pretty nearly tired out. This resulted in a slightly higher test that night, and a slightly lower test for a short time after as Table VI. will show. These same cows were chased several times afterwards but the effect was so slight that it could hardly be detected.

Table VI.
Effect of Excitement and Forced Exercise.

	Avg. Test	Avg. Amount of Milk	Avg. Amt. of Butter-fat
Apr. 6 A. M.	5.57	8.77	.4536
" 6 P. M.	5.47	6.42	.3418

Apr. 7 A. M.	5.35	8.42	.4274
" 7 P. M.	6.35	6.47	.3942
" 8 A. M.	5.95	8.3	.4743
" 8 P. M.	6.00	5.97	.3404
" 9 A. M.	5.27	8.35	.4156
" 9 P. M.	5.05	6.22	.3490

The cows were put on pasture April 12th. An average test, average amount of milk and average amount of butter-fat were taken for several days before the cows were taken to pasture and for several days after, and the following table was made:

Table VII.
Effect of Change from Dry Feed to Pasture.

	Avg. Milk per head	Avg. Test	Avg. B. F. per head
Before going to pasture	16.47	4.866	.7960
After " " "	19.73	4.642	.8772
Dif. in favor of pasture	3.26	.224	.0812

This change on to pasture is represented by curves on coordinate sheet No. IV. The period covered by curves is from April 1st to 20th inclusive. The gradual lowering of the butter-fat production up to the time they were put on grass is probably due to the characteristic fall in the amount of milk in the latter part of the lactation period. The rise in butter-fat production is wholly due to the rise in the amount of milk produced as the test remained about the same or went a little lower.

The following table covers the entire period of one hundred thirty-seven days. It contains the average amount of milk per head for each milking, the average total amount of milk per day, the aver-

age test for each milking and the average test per day, the average amount of butter-fat per head for each milking and average amount of butter-fat per head per day, and the changes in the weather for each day. Below are the abbreviations:

B. = Barometer

L. B. = Low Barometer

C. = Cloudy

H. B. = High Barometer

Cl. = Clear

W. = Warm

V.Cold C.= Very cold & cloudy V.H.B. = Very High Barometer

Date	A.M. Amt. Milk	P.M. Amt. Milk	Total	A.M. Test	P.M. Test	Avg.	A.M. Amt. butter fat	P.M. Amt. butter fat	Total	
Dec. 11	11.99	10.69	22.78	4.25	4.883	4.566	.5157	.5300	1.0453	W.P.M.
" 12	13.04	10.63	23.67	4.44	4.82	4.63	.5737	.5116	1.0437	B.raised cooler
" 13	12.88	10.14	23.02	4.34	4.4	4.39	.5644	.4844	1.0488	H.B.
" 14	11.95	10.36	22.31	4.09	4.03	4.06	.4781	.4516	.9298	H.B.
" 15	11.75	10.43	22.18	4.11	4.96	4.53	.4829	.5269	1.0098	" W.P.M.
" 16	11.61	9.65	20.26	4.54	3.97	4.25	.5274	.3797	.9071	H. B.
" 17	11.93	9.98	21.91	4.47	4.57	4.52	.5485	.4615	1.0100	B.falling
" 18	11.56	10.05	21.61	4.21	4.05	4.13	.4884	.4099	.8983	L.B.Cl.W.
" 19	11.57	10.18	21.75	4.0	4.98	4.49	.4608	.5141	.9749	B.rising in P.M.
" 20	11.55	9.65	21.20	4.42	4.6	4.51	.5089	.4439	.9528	B.falling in P.M.
" 21	11.82	10.29	22.11	4.11	4.37	4.24	.4843	.4450	.9293	Cl.
" 22	11.71	9.90	21.61	4.16	4.36	4.26	.4715	.4283	.8998	Cl. H.B.
" 23	11.77	9.58	21.35	4.49	4.92	4.705	.5412	.4764	1.0176	C. W.A.M.
" 24	11.23	9.25	20.48	4.40	4.61	4.505	.4886	.4240	.9326	Cl.
" 25	10.93	9.1	20.03	3.98	4.20	4.04	.4308	.3809	.8117	H.B. Cold W. P.M.
" 26	10.89	8.58	19.47	4.16	4.39	4.275	.4633	.3800	.8433	Cl.

Date	A.M. Amt. Milk	P.M. Amt. Milk	Total	A.M. Test	P.M. Test	Avg.	A.M. Amt. butter fat	P.M. Amt. butter fat	Total	
Dec. 27	10.62	8.9	19.52	3.93	4.38	4.155	.4060	.3884	.7944	Cl.
" 30	11.11	9.12	20.23	4.3	4.23	4.265	.4347	.3873	.3220	H.B.Cl.
" 31	11.39	9.18	20.57	4.11	4.39	4.25	.4681	.4028	.8709	W. Cl.
Jan. 1	11.15	9.21	20.36	4.21	4.34	4.275	.4701	.3987	.8689	C.l in. snow
" 2	11.27	9.07	20.34	4.15	4.39	4.27	.4657	.3941	.8598	Cold H. B. Cl.
" 3	11.28	8.77	20.05	3.94	4.44	4.19	.4248	.3916	.8164	Cold H.B.
" 4	10.67	9.95	20.62	4.27	4.19	4.23	.4516	.4144	.8660	T.raising H.B.Cl.
" 5	11.1	9.42	20.52	4.27	4.43	4.35	.4692	.4155	.8847	Warmer Cl.
" 6	10.44	9.3	19.74	4.27	4.46	4.365	.4481	.4181	.8668	Cl.
" 7	11.01	9.09	20.10	4.25	4.24	4.245	.4659	.3898	.8557	Cl.
" 8	11.14	9.31	20.45	4.35	4.23	4.39	.4873	.3940	.8813	B. dropp- ing W.
" 9	11.31	9.57	20.88	4.34	4.25	4.295	.4897	.4115	.9012	Warmer L.B.
" 10	11.12	9.31	20.43	4.29	4.48	4.385	.4795	.4217	.9012	W., L.B., C.
" 11	11.28	9.05	20.23	4.03	3.84	3.935	.4523	.3499	.8022	C.
" 12	11.11	9.56	20.67	4.24	4.63	4.435	.4682	.4488	.9170	Cl.
" 13	11.18	9.54	20.72	4.15	4.47	4.31	.4617	.4328	.8945	W., Cl.
" 14	10.27	9.93	20.20	4.18	4.12	4.15	.4650	.4138	.8788	H.B.
" 15	11.15	9.71	20.86	4.11	4.23	4.17	.4567	.4139	.8706	Cl.
" 16	11.55	9.6	21.15	4.12	4.29	4.205	.4743	.4177	.8920	L.B., Cl.
" 17	11.63	9.35	20.98	3.95	4.37	4.16	.4560	.4158	.8718	Cl.
" 18	11.02	9.45	20.47	3.91	4.41	4.18	.4299	.4241	.8540	Cl.
" 19	11.18	9.26	20.44	4.04	4.18	4.11	.4514	.3930	.8444	C., B. falling
" 20	10.83	9.03	19.86	4.06	4.15	4.105	.4309	.3752	.8061	C., Cold- er
" 21	10.71	9.09	19.80	4.46	4.3	4.38	.4756	.3898	.8654	Cold C.
" 22	10.97	8.95	19.92	4.24	4.19	4.215	.4624	.3758	.8382	Cold C.
" 23	11.27	9.18	20.45	3.70	4.03	3.865	.4099	.3682	.7899	Wave, C. Cold

Date	A.M. Amt. Milk	P.M. Amt. Milk	Total	A.M. Test	P.M. Test	Avg.	A.M. Amt. butter fat	P.M. Amt. butter fat	Total	
Jan. 24	11.14	9.26	20.40	4.52	4.14	4.33	.4933	.3887	.8820	Cold C.
" 25	11.04	8.91	19.95	4.175	4.42	4.3	.4663	.3932	.8595	V. Cold C.
" 26	11.29	8.92	20.21	4.09	4.38	4.235	.4423	.3830	.8253	V. Cold A.
" 27	10.41	10.07	20.48	3.65	4.26	3.955	.3825	.4335	.8160	M., P.M. W. W., H.B.
" 28	10.87	9.31	20.18	4.0	4.33	4.165	.4708	.4022	.8730	Big drop in B.P.M.
" 29	10.74	9.3	20.04	4.14	4.69	4.415	.4351	.4382	.8733	Cl.
" 30	11.19	9.76	20.95	4.16	3.8	3.98	.4654	.3636	.8290	L. B.
" 31	11.94	9.81	21.75	3.71	4.16	3.935	.4193	.4017	.8210	Cl., B. rising.
Feb. 1	11.46	10.34	21.80	3.9	3.92	3.91	.4491	.4031	.8522	B.V. Low P.M. W.
" 2	10.61	9.71	20.32	3.91	4.21	4.06	.4123	.4066	.8189	Cold H.B.
One cow dropped.										
" 3	10.56	9.64	20.20	4.08	4.14	4.11	.4262	.3977	.8239	V.H.B. colder.
" 4	11.33	9.81	21.14	3.9	4.39	4.14	.4332	.4339	.8671	P.M. W.
" 5	11.1	10.19	21.29	3.97	4.06	4.015	.4378	.4112	.8490	W., B. dropping
" 6	11.12	9.67	20.79	4.0	3.64	3.82	.4446	.3502	.7948	B. very low
" 7	11.65	9.01	20.66	3.68	4.38	4.03	.4216	.3911	.8127	Cold A.M. B. rising
" 8	11.21	8.97	20.18	4.0	4.17	4.085	.4439	.3789	.8288	Cold H.B. Cloudy
" 9	10.83	8.74	19.57	4.14	3.97	4.06	.4441	.3479	.7920	Cold H.B. Cloudy
" 10	11.05	8.65	19.70	3.9	4.12	4.01	.4119	.3566	.7685	Cold V.H.B. Cloudy
" 11	10.86	8.71	19.57	3.48	3.85	3.665	.3843	.3337	.7180	Cold V. H.B.
" 12	10.61	8.80	19.41	3.80	3.91	3.855	.4043	.3397	.7440	P.M. W., falling B.
" 13	10.91	8.71	19.62	3.72	4.18	3.95	.3979	.3682	.7661	W. low B.
" 14	10.36	8.43	18.79	3.73	4.28	4.005	.3813	.3604	.7417	Cooler H.B.
" 15	10.53	8.01	18.54	4.01	4.26	4.135	.4216	.3424	.7640	Cold H.B.
" 16	10.51	8.23	18.74	3.84	4.04	3.94	.4007	.3347	.7354	Cold
" 17	10.47	8.04	18.51	3.90	4.23	4.065	.4018	.3413	.7431	Cold C.

Date	A.M. Amt. Milk	P.M. Amt. Milk	Total	A.M. Test	P.M. Test	Avg.	A.M. Amt. butter fat	P.M. Amt. butter fat	Total	
Feb. 18	9.83	7.62	17.45	4.11	4.51	4.31	.3997	.3303	.7300	V.H.B.P.M.
" 19	9.73	8.00	17.73	4.28	4.01	4.14	.4147	.3115	.7262	Cold. Cold H.B.
" 20	9.72	7.87	17.59	3.79	4.13	3.96	.3912	.3250	.7162	Cold C.
" 21	9.58	8.03	17.61	4.34	4.34	4.34	.4081	.3476	.7557	H. B. Moderate.
" 22	9.68	8.63	18.31	3.78	4.34	4.06	.3612	.3743	.7355	V.W., P.M.
" 23	10.05	8.22	18.27	4.15	4.21	4.18	.4069	.3460	.7529	Low B. W., L.B.
" 24	10.44	8.50	18.94	3.75	4.07	3.91	.4117	.3465	.7582	W.
" 25	10.37	8.29	18.66	3.41	4.25	3.83	.3426	.3553	.6979	V. W.
" 26	10.40	7.90	18.30	4.13	3.89	4.01	.4278	.3104	.7382	Fair.
" 27	10.19	8.44	18.63	3.87	4.03	3.95	.4005	.3388	.7393	W. P.M.
" 28	10.85	8.55	19.40	3.95	4.58	4.26	.3811	.3575	.7386	W. C.
" 29	9.57	7.69	17.26	4.17	4.28	4.27	.3930	.3348	.7278	W.
Two cows dropped.										
Mar. 1	10.20	8.16	18.36	3.13	4.25	3.69	.3049	.3394	.6443	W. Cl.
" 2	10.72	8.80	19.52	3.78	4.08	3.93	.4001	.3487	.7488	V. W.
" 3	10.34	8.64	18.98	3.70	4.30	4.00	.3873	.3617	.7490	Cold A.M.
" 4	10.36	8.62	18.98	3.99	4.41	4.20	.3999	.3728	.7727	L.B. V.H.B.
" 5	10.51	8.68	19.19	4.00	3.72	3.86	.4099	.3107	.7206	Rapid drop B.
" 6	10.80	9.14	19.94	3.73	4.23	3.98	.3988	.3791	.7785	Moderate.
" 7	11.00	8.73	19.73	3.93	4.03	3.98	.4236	.3533	.7769	Moderate.
" 8	11.21	9.20	20.41	3.81	3.75	3.78	.4263	.3462	.7725	Moderate.
One cow dropped.										
" 9	10.52	9.67	20.19	4.37	4.03	4.20	.4405	.3874	.8279	W.
" 10	11.29	8.81	20.10	3.79	4.55	4.17	.4221	.3988	.8209	V.E.B.W.
" 11	11.21	10.03	21.24	4.32	4.07	4.19	.4868	.4034	.8892	W. L.B.
" 12	11.41	9.71	21.12	3.80	4.16	3.98	.4303	.4018	.8321	C.
" 13	12.00	9.53	21.53	3.87	3.96	3.91	.4581	.3759	.8340	2 in. snow A.M.

Date	A.M. Amt. Milk	P.M. Amt. Milk	Total	A.M. Test	P.M. Test	Avg.	A.M. Amt. butter fat	P.M. Amt. butter fat	Total	
Mar. 14	12.03	9.52	21.55	3.42	4.23	3.825	.4094	.4027	.8121	Cl.
" 15	11.93	9.88	21.81	3.55	3.80	3.675	.4196	.3725	.7821	Moderate.
" 16	12.25	9.82	22.07	3.93	4.60	4.25	.4809	.4489	.9298	W. "
" 17	12.02	9.10	21.12	4.07	4.32	4.295	.4751	.3975	.8726	W. "
" 18	11.55	9.29	21.84	4.16	4.49	4.325	.4853	.4171	.9024	W. "
" 19	10.75	8.82	19.57	4.15	4.01	4.08	.4473	.3543	.8016	W.L.B. in P.M.
" 20	11.95	9.83	21.78	3.85	4.41	4.13	.4701	.4303	.9004	W. C.
One cow dropped.										
" 21	11.44	9.47	20.91	4.20	4.28	4.24	.4634	.4005	.8639	V.W., L.B. in P.M.
" 22	12.01	10.11	22.12	3.91	4.34	4.125	.4769	.4412	.9181	W.L.B.
" 23	11.88	9.67	21.55	3.68	4.17	3.925	.4357	.4054	.8411	Rise in B.
Four cows added.										
" 24	11.11	9.76	20.87	3.99	4.35	4.17	.4368	.4267	.8635	W. C.
" 25	10.86	9.39	20.25	4.04	4.39	4.215	.4284	.4018	.8302	C., L.B.
" 26	9.83	9.23	19.06	4.08	5.03	4.555	.3870	.4514	.8384	Rise in B. P.M.
" 27	9.54	8.47	18.01	4.53	4.88	4.755	.4201	.4012	.8213	W. H. B.
" 28	10.79	8.84	19.63	4.38	4.49	4.435	.4628	.3882	.8510	W. H. B.
" 29	10.12	8.23	18.35	4.44	4.52	4.48	.4427	.3609	.8036	V. W.L.B.
" 30	10.13	8.53	18.66	4.62	4.72	4.77	.4589	.3934	.8523	V. W.L.B.
" 31	9.80	8.23	18.03	4.33	5.02	4.675	.4142	.4057	.8199	L.B.W.C.
Apr. 1	9.60	8.20	17.80	5.06	4.83	4.945	.4777	.3883	.8660	Rising B.
" 2	9.47	8.13	17.60	4.50	4.50	4.500	.4478	.3541	.8019	H.B. Cl.
" 3	9.25	7.53	16.78	4.94	5.39	5.165	.4485	.3935	.8420	H.B. W.
" 4	9.29	7.31	16.60	5.11	5.06	5.085	.4649	.3609	.8258	H.B. W.
" 5	9.48	8.53	18.01	4.88	4.73	4.805	.4498	.3643	.8141	H.B.W.
" 6	9.35	7.33	16.68	4.75	4.76	4.755	.4365	.4311	.7776	W. C.,
" 7	9.39	7.27	16.66	4.92	5.34	5.13	.4508	.3755	.8263	W. C.

Date	A.M. Amt. Milk	P.M. Amt. Milk	Total	A.M. Test	P.M. Test	Avg.	A.M. Amt. butter fat	P.M. Amt. butter fat	Total	
Apr. 8	9.09	6.50	15.59	5.20	5.48	5.34	.4601	.3489	.8090	Cold C.
" 9	8.97	6.65	15.62	4.91	4.69	4.80	.4283	.3048	.7331	L.B.C.
" 10	8.86	8.22	17.08	4.22	4.91	4.565	.3702	.3899	.7601	W.in P.M.
" 11	9.70	7.59	17.29	4.80	4.51	4.655	.4539	.3438	.7977	W. Cl.
" 12	9.23	7.14	16.37	4.65	4.99	4.82	.4201	.3481	.7682	Moderate.
" 13	10.20	8.13	18.33	4.58	4.51	4.545	.4558	.3395	.7953	W. H.B.
" 14	9.95	8.33	18.28	4.55	4.68	4.615	.4514	.3807	.8321	W.in P.M.
" 15	10.32	8.52	18.84	4.49	4.73	4.61	.4501	.3962	.8469	W.
" 16	10.70	9.10	19.80	4.26	4.71	4.555	.4428	.4192	.8620	Rise in B. P. M.
" 17	11.42	8.69	20.11	4.62	4.91	4.765	.4412	.4053	.8465	H.B. Warm in P.M.
" 18	12.07	9.72	21.79	4.61	4.63	4.62	.5472	.4439	.9811	V.W. Cl.
" 19	11.48	9.51	20.99	4.94	4.63	4.785	.5502	.4262	.9764	C.
" 20	10.88	9.38	20.26	4.84	5.34	4.59	.5242	.4642	.9884	C.
" 21	10.26	7.87	18.13	4.48	4.70	4.59	.4339	.3565	.7904	C.
" 22	10.11	8.49	18.60	4.52	4.64	4.375	.4293	.3844	.8137	W. P.M. L. B.
" 23	10.40	8.72	19.12	4.69	4.84	4.765	.4763	.4121	.8884	C.
" 24	9.47	8.47	17.94	5.13	4.57	4.85	.4758	.3782	.8540	C.
" 25	9.91	7.58	17.49	4.19	5.28	4.735	.4073	.3911	.7984	C.

The curves on co-ordinate sheets Nos. V, VI, and VII cover the period from December 11th to February 11th, and represents the temperature, barometer and butter-fat.

No. V

Dec 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Temperature
50°

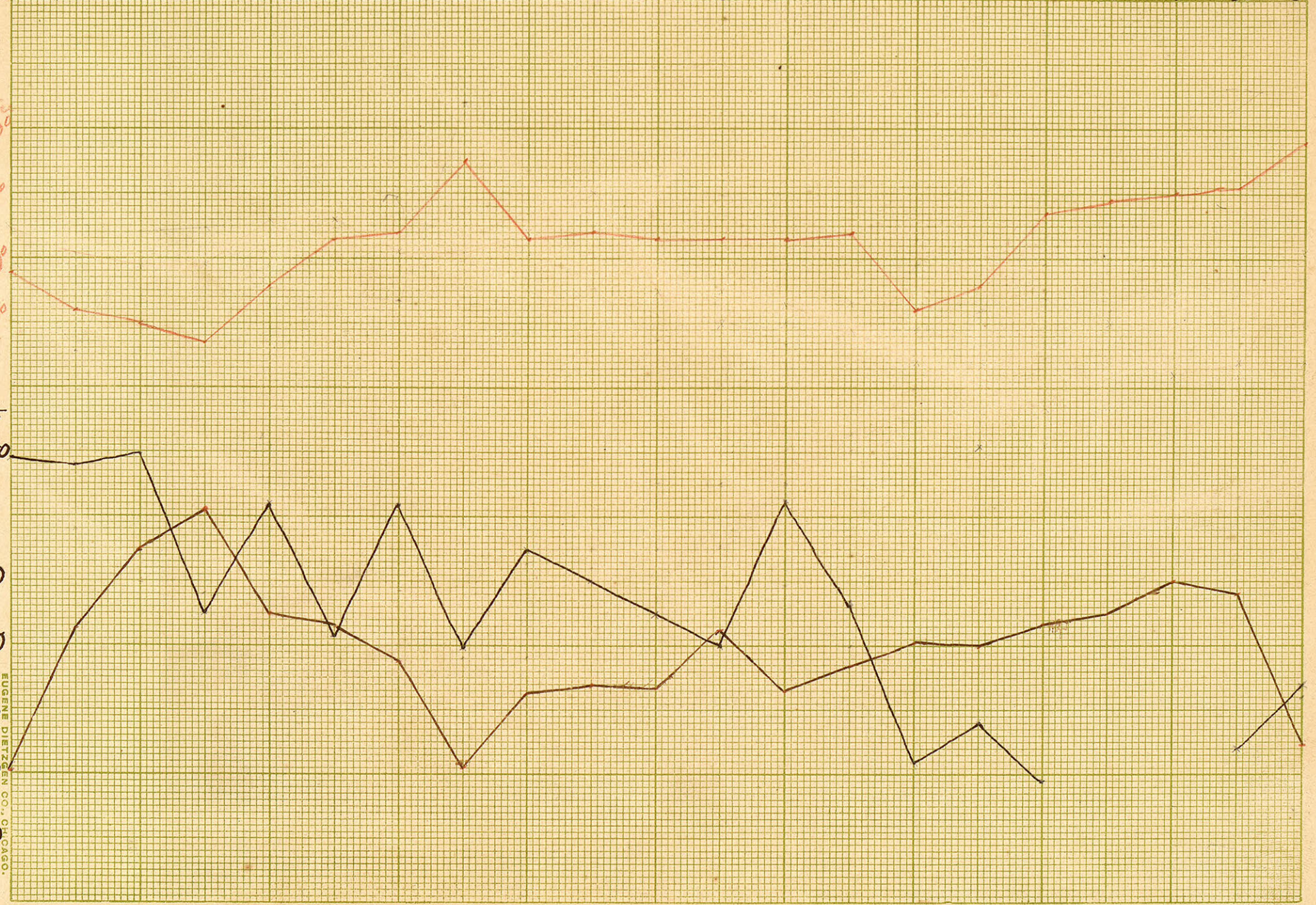
40°
30°
20°

13.7
1.050

Baromet.
29.40

1.000
29.20 .950
29.00 .900
28.80 .850
28.60 .800
.750

EUGENE DIETZEN CO., CHICAGO.



Jan 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

Temperature
50

40
30
20
10

Barometer A.S.
29.60 1.050

29.40 1.000

29.20 .950

29.00 .900

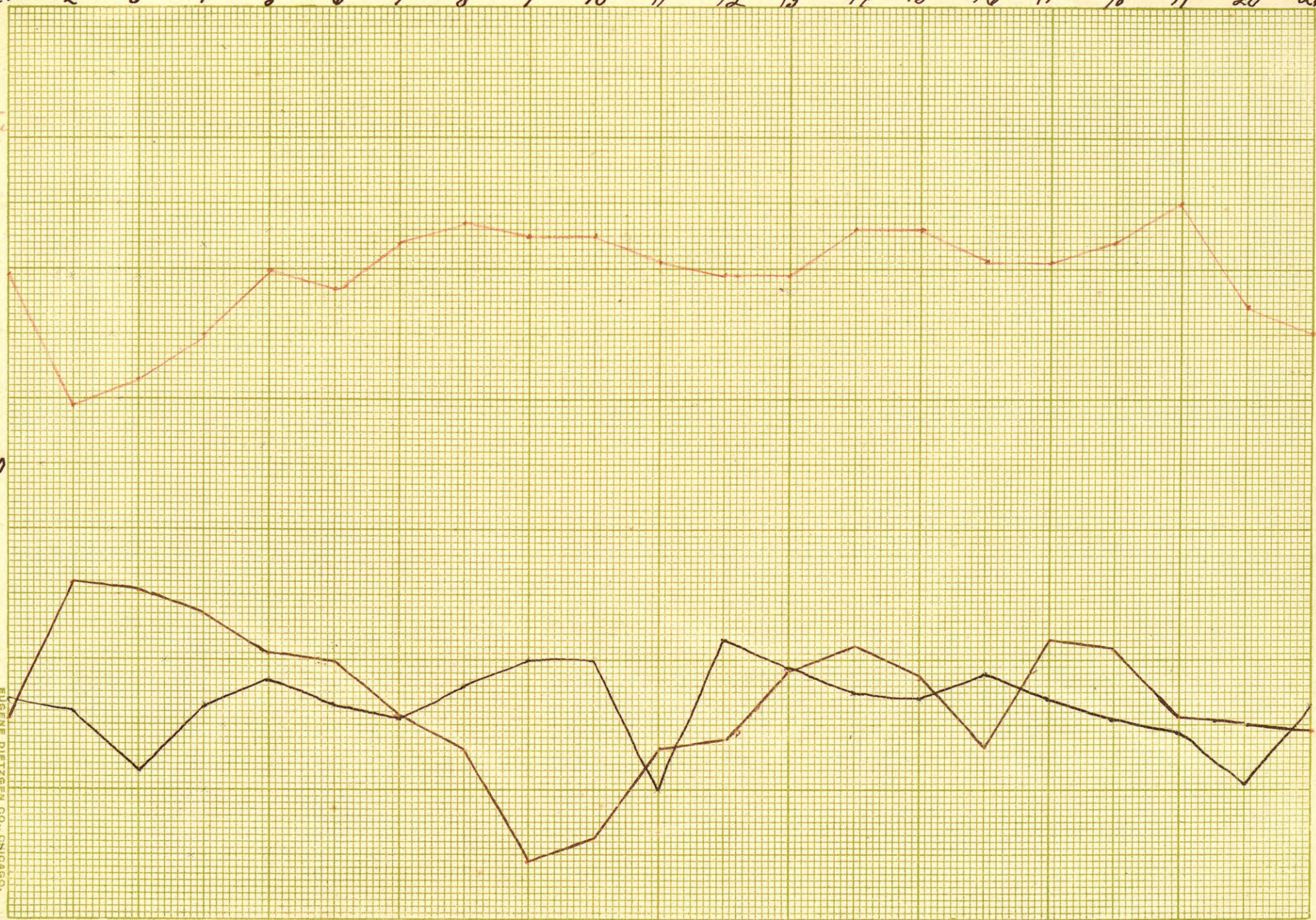
28.80 .850

28.60 .800

28.40 .750

28.20

EUGENE DIETZGEN CO., CHICAGO.



710.80

Jan 22 23 24 25 26 27 28 29 30 31 Feb. 1 2 3 4 5 6 7 8 9 10 11

Temperature

50°

40°

30°

20°

10°

0°

1.050

Barometer

29.40 1.000

29.20 .950

29.00 .900

28.80 850

28.60 800

28.40 750

28.20

EUGENE DIEZGEN CO., CHICAGO.

